Nuclide	Activity (μCi)	Nuclide	Activity (μCi)	Nuclide	Activity (μCi)
Ce-139	2.4E+02	Mo-93	7.7E+01	Sr-90	7.7E+03
Ce-141	2.4E+03	Na-22	1.9E+01	Ta-179	1.5E+06
Ce-144	1.5E+03	Nb-91	7.0E+01	Ta-182	7.3E+01
Cf-248	2.0E+02	Nb-91m	3.6E+02	Tb-157	2.5E+03
Cf-249	1.7E+01	Nb-92	1.8E+01	Tb-158	3.9E+04
Cf-250	3.8E+01	Nb-93m	4.4E+02	Tb-160	1.2E+02
Cf-251	1.7E+01	Nb-94	2.3E+01	Tc-95m	1.3E+02
Cf-252	6.4E+01	Nb-95	3.4E+02	Tc-97	8.1E+01
Cf-254	3.4E+01	Ni-59	7.5E+06	Tc-97m	3.6E+02
Cl-36	4.6E+05	Ni-63	3.2E+06	Tc-98	2.5E+01
Cm-241	6.8E+04	Np-235	1.2E+02	Tc-99	6.8E+06
Cm-242	5.8E+02	Np-236	2.2E+01	Te-121m	1.9E+02
Cm-243	3.3E+01	Np-237	1.9E+01	Te-123m	2.8E+02
Cm-244	4.0E+01	Os-185	1.4E+02	Te-125m	4.4E+02
Cm-245	2.2E+01	Os-194	1.5E+04	Te-127m	8.0E+02
Cm-246	2.2E+01	Pa-231	7.8E+00	Te-129m	2.3E+03
Cm-247	2.4E+01	Pb-202	1.0E+05	Th-228	2.9E+01
Cm-248	6.0E+00	Pb-205	9.1E+01	Th-229	4.7E+00
Cm-250	1.1E+00	Pb-210	9.2E+01	Th-230	3.1E+01
Co-56	4.0E+01	Pd-107	7.8E+05	Th-232	6.1E+00
Co-57	2.3E+02	Pm-143	1.3E+02	Ti-44	1.6E+02
Co-58	1.4E+02	Pm-144	2.9E+01	Tl-204	2.2E+04
Co-60	1.8E+01	Pm-145	2.6E+02	Tm-170	8.4E+03
Cs-134	2.7E+01	Pm-146	4.5E+01	Tm-171	2.8E+04
Cs-135	2.2E+06	Pm-147	2.5E+05	U-232	1.5E+01
Cs-137	6.0E+01	Pm-148m	1.1E+02	U-233	7.4E+01
Dy-159	4.1E+06	Po-209	6.3E+03	U-234	7.5E+01
Es-254	6.3E+01	Po-210	1.1E+03	U-235	6.7E+01
Es-255	4.6E+04	Pt-193	4.4E+07	U-236	8.0E+01
Eu-148	7.0E+05	Pu-236	6.9E+01	U-238	8.4E+01
Eu-149	5.3E+06	Pu-237	3.3E+02	V-49	2.9E+07
Eu-152	3.1E+01	Pu-238	2.5E+01	W-181	1.1E+03
Eu-154	3.1E+01	Pu-239	2.3E+01	W-185	3.9E+06
Eu-155	3.7E+02	Pu-240	2.3E+01	W-188	6.4E+04
Fe-55	3.7E+06	Pu-241	1.2E+03	Y-88	3.4E+01
Fe-59	2.0E+02	Pu-242	2.4E+01	Y-91	5.0E+04
Fe-60	1.3E+04	Pu-244	2.5E+01	Yb-169	5.5E+02
Fm-257	4.3E+02	Ra-226	1.2E+03	Zn-65	1.1E+02
Gd-146	2.6E+05	Ra-228	2.1E+03	Zr-88	1.2E+02
Gd-148	3.0E+01	Rb-83	9.2E+01	Zr-93	3.1E+04
Gd-151	1.1E+06	Rb-84	2.0E+02	Zr-95	2.0E+02
Gd-153	2.1E+02	Re-183	5.4E+02		
Ge-68	5.7E+02	Re-184	2.6E+02		

Any alpha emitting radionuclide not listed above and mixtures of alpha emitters of unknown composition have a value of 10 microcuries.

Any radionuclide other than alpha emitting radionuclides not listed above and mixtures of beta emitters of unknown composition have a value of 100 microcuries.

NOTE: Where there is involved a combination of radionuclides in known amounts, derive the value for the combination as follows: determine, for each radionuclide in the combination, the ratio between the quantity present in the combination and the value otherwise established for the specific radionuclide when not in combination. If the sum of such ratios for all radionuclides in the combination exceeds unity (1), then the accountability criterion has been exceeded.

[63 FR 59688, Nov. 4, 1998]

PART 840—EXTRAORDINARY NUCLEAR OCCURRENCES

Sec.

AUTHORITY: Sec. 161 of the Atomic Energy Act of 1954, Pub. L. 83–703, 68 Stat. 919 (42 U.S.C. 2201); sec. 170 of the Atomic Energy Act of 1954, Pub. L. 85–256, 71 Stat. 576, as amended by Pub. L. 89–645, 80 Stat. 891 (42 U.S.C. 2210); Department of Energy Organization Act, Pub. L. 95–91, 91 Stat. 565–613 (42 U.S.C. 7101–7352).

SOURCE: 49 FR 21473, May 21, 1984, unless otherwise noted.

§ 840.1 Scope and purpose.

(a) *Scope.* This subpart applies to those DOE contractor activities to which the nuclear hazards indemnity provisions in 41 CFR 9–50.704–6 apply, and to other persons indemnified with respect to such activities.

(b) *Purpose.* One purpose of this subpart is to set forth the criteria which the DOE proposes to follow in order to determine whether there has been an ''extraordinary nuclear occurrence.'' The other purpose is to establish the conditions of the waivers of defenses proposed for incorporation in indemnity agreements.

(1) The system is to come into effect only where the discharge or dispersal constitutes a substantial amount of source, special nuclear or byproduct material, or has caused substantial radiation levels offsite. The various limits in present DOE regulations are not appropriate for direct application in the determination of an ''extraordinary nuclear occurrence,'' for they were arrived at with other purposes in mind, and those limits have been set at a level which is conservatively arrived at by incorporating a significant safety factor. Thus, a discharge or dispersal which exceeds the limits in DOE regulations, or in DOE orders, although possible cause for concern, is not one which would be expected to cause substantial injury or damage unless it exceeds by some significant multiple the appropriate regulatory limit. Accordingly, in arriving at the values in the criteria to be deemed ''substantial'' it is more appropriate to adopt values separate from DOE health and safety orders, and, of course the selection of these values will not in any way affect such orders. A substantial discharge, for purposes of the criteria, represents a perturbation of the environment which is clearly above that which could be anticipated from the conduct of normal activities. The criteria are intended solely for the purposes of administration of DOE statutory responsibilities under Pub. L. 89–645, and are not intended to indicate a level of discharge or dispersal at which damage is likely to occur, or even a level at which some type of protective action is indicated. It should be clearly understood that the criteria in no way establish or indicate that there is a specific threshold of exposure at which biological damage from radiation will take place. It cannot be emphasized too frequently that the levels set to be used as criteria for the first part of the determination, that is, the criteria for amounts offsite or radiation levels offsite which are substantial, are not meant to indicate that, because such amounts or levels are determined to be substantial for purposes of administration, they are ''substantial'' in terms of their propensity for causing injury or damage.

(2) It is the purpose of the second part of the determination that DOE decide whether there have in fact been or will probably be substantial damages to persons offsite or property offsite. The criteria for substantial damages were formulated, and the numerical values selected, on a wholly different basis from that on which the criteria used for the first part of the determination with respect to substantial discharge were derived. The only interrelation between the values selected for the discharge criteria and the damage criteria is that the discharge values are set so low that it is extremely unlikely the damage criteria could be satisfied unless the discharge values have been exceeded.

(3) The first part of the test is designed so that DOE can assure itself that something exceptional has occurred; that something untoward and unexpected has in fact taken place and that this event is of sufficient significance to raise the possibility that some damage to persons or property offsite has resulted or may result. If there appears to be no damage, the waivers will not apply because DOE will be unable, under the second part of the test, to make a determination that ''substantial damages'' have resulted or will probably result. If damages have resulted or will probably result, they could vary from de minimis to serious, and the waivers will not apply until the damages, both actual and probable, are determined to be ''substantial'' within the second part of the test.

(4) The presence or absence of an extraordinary nuclear occurrence determination does not concomitantly determine whether or not a particular claimant will recover on his claim. In effect, it is intended primarily to determine whether certain potential obstacles to recovery are to be removed from the route the claimant would ordinarily follow to seek compensation for his injury or damage. If there has not been an extraordinary nuclear occurrence determination, the claimant must proceed (in the absence of settlement) with a tort action subject to whatever issues must be met, and whatever defenses are available to the defendant, under the law applicable in the relevant jurisdiction. If there has been an extraordinary nuclear occurrence determination, the claimant must still proceed (in the absence of settlement) with a tort action, but the claimant's burden is substantially eased by the elimination of certain issues which may be involved and certain defenses which may be available to the defendant. In either case the defendant may defend with respect to such of the following matters as are in issue in any given claim: the nature of the claimant's alleged damages, the causal relationship between the event and the alleged damages, and the amount of the alleged damages.

§ 840.2 Procedures.

(a) DOE may initiate, on its own motion, the making of a determination as to whether or not there has been an extraordinary nuclear occurrence. In the event DOE does not so initiate the making of a determination, any affected person, or any person with whom an indemnity agreement is executed may petition DOE for a determination of whether or not there has been an extraordinary nuclear occurrence. If DOE does not have, or does not expect to have, within 7 days after it has received notification of an alleged event, enough information available to make a determination that there has been an extraordinary nuclear occurrence, DOE will publish a notice in the FEDERAL REGISTER setting forth the date and place of the alleged event and requesting any persons having knowledge thereof to submit their information to DOE.

(b) When a procedure is initiated under paragraph (a) of this section, the principal staff which will begin immediately to assemble the relevant information and prepare a report on which the DOE can make its determination will consist of the Directors or their designees of the following Divisions or Offices: Office of Nuclear Safety, Office of Operational Safety, Office of Health and Environmental Research, the General Counsel or his designee, and a representative of the program division whose facility or device may be involved.

§ 840.3 Determination of extraordinary nuclear occurrence.

If the DOE determines that both of the criteria set forth in § 840.4 and § 840.5 have been met, it will make the determination that there has been an extraordinary nuclear occurrence. If the DOE publishes a notice in the FEDERAL REGISTER in accordance with § 840.2(a) and does not make a determination within 90 days thereafter that there has been an extraordinary nuclear occurrence, the alleged event will be deemed not to be an extraordinary nuclear occurrence. The time for the making of a determination may be extended by DOE by notice published in the FEDERAL REGISTER.

§ 840.4 Criterion I—Substantial discharge of radioactive material or substantial radiation levels offsite.

DOE will determine that there has been a substantial discharge or dispersal of radioactive material offsite, or that there have been substantial levels of radiation offsite, when as a result of an event comprised of one or more related happenings, radioactive material is released from its intended place of confinement or radiation levels occur offsite and either of the following findings are also made:

(a) DOE finds that one or more persons offsite were, could have been, or might be exposed to radiation or to radioactive material, resulting in a dose or in a projected dose in excess of one of the levels in the following table: